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7590  
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One Boland Drive  
West Orange, NJ 07052

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EXAMINER
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KRUER, STEFAN

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **DETAILED ACTION**

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title(s) is suggested: "Wedge-shaped Ribbed Elevator Belt" or, preferably, "Flat Elevator Belt with Wedge-shaped Ribs".

### ***Claim Objections***

**Claim 18** is objected to because of the following informalities: "stands" should be written as "strands". Appropriate correction is required.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the belt body (15.2) as described in the specification on Page 8, Line 29. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 12** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 12** recites the limitation "each" in "in each instance". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 11 – 13 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al (2003/0121729) in view of Fischer (4,330,287).

**Re: Claim 11**, Heinz et al disclose an elevator installation (Fig. 3) comprising:

- an elevator cage (E);
- a drive pulley (P2);
- at least one support means formed as a flat belt (10); and
- a drive engine (M) which drives the at least one support means, which carries the elevator cage, by way of the drive pulley;
- wherein the support means has, at least on a running surface facing the drive pulley, several ribs (25) of wedge-shaped cross-section which extend parallel in a longitudinal direction of the support means and further has several tensile carriers (15) oriented in the longitudinal

direction of the support means, the tensile carriers being distributed in a transverse direction of the support means;

however, Heinz et al are silent with respect to exactly two tensile carriers are associated with each of the ribs.

Attention is directed to Fischer who teaches his exactly two tensile carriers (18) associated with each of his ribs (24), wherein the two tensile carriers are arranged symmetrically to an axis of symmetry of each respective rib.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with the teaching of Fischer for the benefits of load-sharing amongst the ribs, proper rib-alignment and performance.

**Re: Claim 12**, Heinz et al disclose their tensile carriers arranged in a transverse direction of their support means, their disposition with respect to a perpendicular projection of a respective inclined flank of a respective rib is not reviewed.

Attention is directed to Fischer who teaches his tensile carriers arranged in a transverse direction of his support means, wherein at least 90% of the cross-sectional area of each tensile carrier lies within a corresponding perpendicular projection of a respective inclined flank of one of the ribs.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with the teaching of Fischer for the benefits of dedicating two tensile carriers to each rib for load-sharing, rib-alignment and performance.

**Re: Claim 13**, Heinz et al are silent with respect to a specific disposition of their tensile carrier with respect to their ribs as well as a spacing of their tensile carriers in relation to each other.

Attention is directed to Fischer who teaches his tensile carriers arranged in a transverse direction of his support means, wherein at least 90% of the cross-sectional area of each tensile carrier lies within a corresponding perpendicular projection of a respective inclined flank of one of the ribs, thereby dedicating two tensile carriers to a respective rib, wherein the implication of such arrangement

results in a spacing between centers of two tensile carriers associated with a rib is smaller than a spacing between the centers of adjacent tensile carriers Associated with two adjoining ribs.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with the teaching of Fischer for the benefits of isolating dedicated, dual tensile carriers to each rib for proper alignment of the ribs to their co-engaging grooves of the sheave(s), thereby promoting the transfer of torque for reductions in drive capacity and space utilization.

**Re: Claim 16**, Heinz et al disclose a transverse direction of their ribs has a wedge-shaped cross-section with a flank angle of 60° to 120°.

**Claims 14 – 15 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al and Fischer, as applied to Claim 1, in further view of Takahashi et al (6,419,605).

**Re: Claim 14**, Heinz et al and Fischer are silent with respect to the size of their respective tensile carriers and cross-sectional area of their support means.

Attention is directed to Takahashi et al who teach their tensile carriers (2) comprising approximately 20% of their cross-sectional area of their support means (based on each rib,  $d \times H \text{ less } 2 \times \frac{1}{2} \times h_r \times C$ ), wherein the number, arrangement and orientation with respect to each rib and rib flank is in keeping with an alternative embodiment of the instant invention. Furthermore, based on two tensile carriers per each rib and the consequential increase in their diameters to afford the desirable load-carrying and structural reinforcing aspects to a respective rib, a total cross-sectional area of all their tensile carriers would comprise 30% to 40% of a cross-sectional area of the support means.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al and Fischer with Takahashi et al for the benefits of a support means construction affording reductions in vibration and noise for ergonomics.

**Re: Claims 15 and 17**, Heinz et al and Fischer are silent with respect to the size of their respective tensile carriers, a rib-spacing and a thickness of their support means.

Attention is directed to Takahashi et al who teach each of their tensile carriers having a diameter comprising approximately 30% of a rib-spacing (d), as well as 50% of a rib-spacing (hr), and a minimum spacing ( $H_1$ ) between an outer contour of their tensile carrier and a surface of their rib (3) amounts to at most 20% of a total thickness (H) of the support means (Col. 3, L. 37 – Col. 4, L. 10)

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al and Fischer with Takahashi et al for the benefits of a support means construction affording appropriate load-carrying capacity and reductions in vibration and noise for performance and ergonomics.

**Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al and Fischer, as applied to Claim 1, in further view of Baranda et al (WO 00/37738).

Heinz et al and Fischer are silent with respect to a number of wires comprising their tensile carriers.

Attention is directed to Baranda et al who teach their tensile carriers (Fig. 7) comprising steel wire cables (37a, 37b, Page 10, Line 20), which are twisted from several strands in total containing more than 50 individual wires (29, 31, 35).

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. White, Jr. et al (4,981,462), Adams (2,728,239), Goeser et al (EP 1396458 A2) and Kopang (6,609,990) are cited for reference of:

- teaching that the larger the rib angle, 60° versus 40°, the less the tension decay, drive misalignment and noise;
- "... ribs may be provided with a plurality of transverse triangular slots... for elimination of lateral distortion (and enhanced flexibility (sic))

without compromising uniform distribution of loading on the sheaves..."  
(Col. 5, Line 29);

- a ribbed belt for elevators having a flank angle of 30° to 90°;
- a flat belt having wedge-shaped ribs wherein a "... significantly reduced distance from a tensile carrier (sic) to a .... rib/pulley interface... causes a reduction of the magnitude of the deflection of the rib...", respectively.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Cuomo can be reached on 571.272.6856. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free).

SHK

16 December 2007

  
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